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EXAMINER

PAUL, DISLER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/786,494	Applicant(s) OPITZ, MARTIN	
	Examiner DISLER PAUL	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/19/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: word "via the loudspeaker is repeated" wherein "emitting predetermined signal via the loudspeaker via the loudspeaker". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 2 recites the limitation "each of the digital filter" in therein. There is insufficient antecedent basis for this limitation in the claim.

For prior art rejection the claim will be read as from "each of a digital filter for each of the microphone"

3. Claim 3 recites the limitation "the input impedance of the AID converter_and the output amplifier_" in therein. There is insufficient antecedent basis for this limitation in the claim.

For prior art rejection the claim will be read as from "an input impedance of the AID converter_and an output amplifier_"

Also Claim 3 recites the limitation "originates the measurement" in therein. There is insufficient antecedent basis for this limitation in the claim.

For prior art rejection the claim will be read as from "originate of a measurement"

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2; 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pla et al. (5,402,669) and Chau (US 5,305,307).

Re claim 1, Pla et al. disclose of the Array microphone with several individual microphones connected with a signal processor that comprises at least one digital filter for each individual microphone, in particular for voice recognition (fig.2 wt (38,40,48,50), col.3 line 45-65)), at least one loudspeaker is provided, which is arranged in the acquisition range of each of the individual microphones (fig.2 wt (20)); col.3 lines 35-40)), an electronic circuit configured to apply signal to the loudspeaker to emit a predetermined noise signal

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(fig.2 wt (24,26,28), col.3 line 5-10; col.3 line 1-10; col.2 line 45-65/to emit pure tone signal and thus infer predetermined of the noise signal)).

However, Pla et al. fail to disclose of the signal specific wherein the loudspeaker to emit periodic signal. But, Chau disclose of a signal wwherein the loudspeaker to emit periodic signal (fig.1-3; col.10 line 30-35/loudspeaker with mic and adaptive filter). Thus, taking the combined teaching of Pla et al. and Chau as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Pla et al. with the loudspeaker to emit periodic signal for actively compensating for changing room condition which adapt the adaptive filters of sensor accordingly.

The combined teaching of Pla et al. and Chau as a whole, further teach of the signal processor configured to evaluate the response signals coming from each of the microphones and/or from each of the digital filters as a response to the reception of the noise signal and wherein the signal processor is configured to compare the response signals with model signals stored in the signal processor or externally (fig.2, col.1 line 25-40; col.3 line 25-34 & col.4 line 17-30 & line 38-48/ the output at each filter equal to the output at processor within a predetermined stored value).

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Re claim 2, Pla et al. disclose the method for checking array microphones, comprising connecting several individual microphones connected with a signal processor, providing at least one loudspeaker in the acquisition range of each of the individual microphones and providing a signal processor connected to the at least one loudspeaker and to each microphone ; emitting a predetermined periodic noise signal via the loudspeaker, evaluating at least one response signals from each microphone and/or from each of a digital filter from each microphone, and comparing the at least one response signal with at least one model signals stored in the signal processor or externally, and which correspond to properly operating individual microphones or properly operating filters(see claim 1 rejection analysis).

But, Pla et al. fail to disclose of the specific wherein providing a display in the form of a message and/or storing the comparison result. However, official notice is taken the limitation of providing a display in the form of a message and/or storing the comparison result is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to have incorporate the having a display to provide the status of the device in the form of a message for enabling the user to visually be informed of the operating condition of the device.

Re claim 5, Pla et al. disclose of a Method automatically calibrating , having several individual microphones connected to a

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signal processor having at least one digital filter for each individual microphone(fig.2; col.3 line 60-65), the method comprising: increasing the sound concentration of the array microphone and suppresses lateral sound sources by applying an appropriate algorithm to the individual microphone signals, the algorithm components including filter coefficient sets used in the digital filters characteristic of the arrangement, type, sensitivity, and characteristics of the microphones (fig.2 ;col.3 line 67 & col.4 line 12; col.6 line 67 & col.7 line 5/adaptive filter with coefficient for efficiency for noise), the acoustical environment, and the location of the sound sources , providing at least one loudspeaker in the acquisition range of each individual microphone, the loudspeaker is connected to a signal processor, to which is connected to each microphone; emitting a predetermined noise signal via the loudspeaker (fig.2 wt (24,26,28), col.3 line 5-10; col.3 line 1-10)).

However, Pla et al. fail to disclose of the signal specific wherein the loudspeaker to emit periodic signal. But, Chau disclose of a signal wherein the loudspeaker to emit periodic signal (fig.1-3; col.10 line 30-35/loudspeaker with mic and adaptive filter). Thus, taking the combined teaching of Pla et al. and Chau as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Pla et al. with the loudspeaker to emit periodic signal for actively compensating for changing room condition which adapt the adaptive filters of sensor accordingly.

The combined teaching of Pla et al. and Chau as a whole, further teach of evaluating the response signals from each microphone and/or from each digital filter comparing the response signals with model stored in the signal processor, or externally, and which correspond to properly operating individual microphones or properly operating digital filters via the loudspeaker and changing the value of individual filter coefficients or of all the filter coefficients of the filter coefficient set as a function of the deviation of the response signal from the models (fig.2, col.1 line 25-40; col.3 line 25-34 & col.4 line 17-30 & line 38-48/with filter being update with stored filters stored for match).

The combined teaching of Pla et al. and Chau as a whole, fail to disclose of the specific wherein repeats the test until the response signals are in the range of the model signals. But, it is noted the concept of repeats the test until the response signals are in the range of the model signals is simply the designer's preference. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Pla et al. and Chau as a whole, with the specific wherein repeats the test until the response signals are in the range of the model signals for generating an improved précised measurement device.

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Re claim 6, the combined teaching of Pla et al. and Chau as a whole, a method according to claim 5, However, the combined teaching of Pla et al. and Chau as a whole, fail to disclose of the specific wherein interrupting the test after a predetermined number of test repetitions have been carried out. But, it is noted the concept of interrupting the test after a predetermined number of test repetitions have been carried out is simply the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Pla et al. and Chau as a whole, with the specific wherein interrupting the test after a predetermined number of test repetitions have been carried out for generating an improved précised measurement device.

The combined teaching of Pla et al. and Chau as a whole, displaying and/or storing an error message (see claim 2 rejection anslysis).

4. Claim 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pla et al. (5,402,669) and Chau (US 5,305,307) and further in view of Shuttleworth (2002/0071568 A1) and Flentje (US 2002/0048379 A1).

Re claim 3, the method according to claim 2, with the loudspeaker emitting a predetermined periodic signal, and of the system of having

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the loudspeaker applied directly to the A/D convertor (col.2 line 29-32), However, the combined teaching of Pla et al. and Chau as a whole, fail to specifically disclose of before emitting a predetermined periodic noise signal via the loudspeaker, verifying the loudspeaker by applying the loudspeaker signal directly to the A/D convertor and operating the loudspeaker in parallel to an input impedance of the AID converter , the loudspeaker forming a voltage divider with an output resistance of an output amplifier that operate the loudspeaker and recording the signal applied to the AID converter and evaluating the signal by comparing this signal with a reference signal that originates from a measurement with a reference impedance instead of the loudspeaker impedance.

However, Shutttleworth disclose of a monitoring impedance speaker wherein the similar concept of having the verification is carried out before emitting the noise signal via the loudspeaker, and where the loudspeaker signal is directly applied to the digital processor and further of having the signal is recorded and evaluated by comparing this signal with a reference signal that originates from a measurement with a reference impedance instead of the loudspeaker impedance (fig.1-2; page 1[0008-9; page 2[0017]) for the purpose of performing self-diagnostic test in ensuring the audio system is working properly. Thus, taking the combined teaching of Pla et al. and Chau and Shutttleworth as a whole, it would have been obvious for one of the ordinary skill in the art to add before emitting the noise

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signal via the loudspeaker, and where the loudspeaker signal is directly applied to the digital processor (inherent AD convertor) and further of having the signal is recorded and evaluated by comparing this signal with a reference signal that originates from a measurement with a reference impedance instead of the loudspeaker impedance added to the teaching of Pla et al. and chau as a whole, for the purpose of performing self-diagnostic test in ensuring the audio system is working properly.

While, the combined teaching Pla et al. and Shutttleworth as a whole, fail to explicitly disclose of the having the A/D converter wherein the speaker signal is directly applied to. However, Shutttleworth did disclose of having the loudspeaker signal directly directed to the digital amplifier (fig.1 (27,12)), thus with the above, it is inherent of the existence of such A/D converter being incorporated in the system which convert the signal so as to be processed by the digital processor (fig.1 (12)).

However, the combined teaching of Pla et al. and Shutttleworth as a whole, fail to disclose of the configuration of the system wherein the loudspeaker forming a voltage divider with the output resistance of an output amplifier which operates the loudspeaker.

However, Flentje disclose a system wherein the similar concept of having the configuration of the system wherein the loudspeaker forming a voltage divider with the output resistance of an output amplifier which operates the loudspeaker (fig.2 (20,24,18); page 3[0033]). Thus, taking the combined teaching of Pla et al. and Chau and Shuttletworth as a whole, it would have been obvious for one of the ordinary skill in the art to have incorporated the loudspeaker forming a voltage divider with the output resistance of an output amplifier which operates the loudspeaker for the purpose of enabling the device to consummate unnecessary electrical energy and thus maintaining the harmonic distortions and dynamic response of the signal at constant quality.

However, the combined teaching of Pla et al. and Chau and Shuttletworth and Flentje as a whole, fail to disclose of the having the loudspeaker operating in parallel to the impedance of the A/D convertor. However, official notice is taken that the concept of having the loudspeaker operating in parallel to the impedance of the A/D convertor is simply the inventor's need, thus it would have been obvious for one for one of the ordinary skill in the art to have modify the combined teaching of Pla et al. and Chau and Shuttletworth and Flentje as a whole, by incorporating the having the loudspeaker operating in parallel to the impedance of the A/D convertor for generating predetermined periodic signal sounds.

Re claim 4, the method according to claim 3, characterized in that the ratio of the loudspeaker impedance to the input impedance of the A/D converter is verified and, However, the combined teaching of Pla et al. and Chau and Shuttteleworth and Flentje as a whole, verifying the ratio of the loudspeaker to the input impedance of the AID converter and if it deviates too far from the value of 1, adding an additional pre-resistor , which is switched in front of the loudspeaker.

But, it is noted the concept of having such verifying the ratio of the loudspeaker to the input impedance of the AID converter and if it deviates too far from the value of 1, adding an additional pre-resistor , which is switched in front of the loudspeaker is simply the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Pla et al. and Chau and Shuttteleworth and Flentje as a whole, with the verifying the ratio of the loudspeaker to the input impedance of the AID converter and if it deviates too far from the value of 1, adding an additional pre-resistor , which is switched in front of the loudspeaker for the purpose of performing self-diagnostic test in ensuring the audio system is working properly.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 2614

/Xu Mei/
Primary Examiner, Art Unit 2614